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AI and Healthcare
Can you trust it?

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A little bit about me...

I have over ten years of experience in healthcare ranging from cyber security to information technology. Over the last six years I have been involved in electronic healthcare record interoperability which means that we combine healthcare records from different providers and put them in one place.

We help patients obtain and most importantly, understand their medical information. People do not know that medical records can contain errors which can be extremely dangerous.

I am a caregiver for two parents and understand the needs of patients trying to navigate the complex medical system. I have an an undergraduate degree from Colorado State University and an MBA from the University of New Mexico.

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What *IS* AI?

Artificial Intelligence (AI) is a branch of computer science that develops systems capable of performing tasks that typically require human intellect. These systems learn from data to identify patterns, solve problems, and make decisions rather than just following fixed instructions.

https://www.ibm.com/think/topics/artificial-intelligence

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What is *Generative AI?*

Generative AI refers to a class of artificial intelligence models and algorithms that create new content or data based on input data. Unlike traditional AI, which focuses on recognizing patterns and making predictions, generative AI actively generates new, original content.

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AI in Healthcare

The comparison between AI systems and real physicians in making health diagnoses is a rapidly evolving area of research. Here are several key points to consider regarding their capabilities, strengths, and weaknesses:

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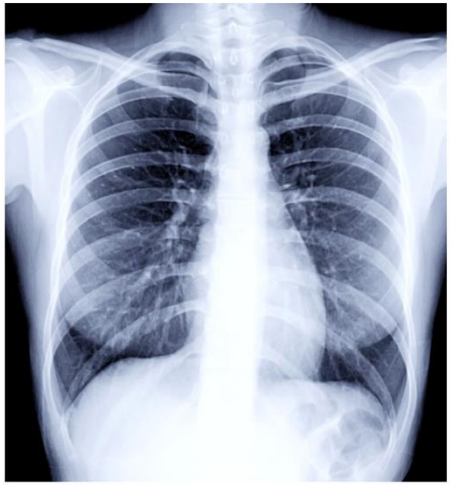
Accuracy and Consistency

•**AI Performance**: Studies have shown that AI models, especially deep learning algorithms, can reach accuracy levels comparable to or even exceeding those of human physicians in certain areas, such as radiology (e.g., interpreting X-rays, MRIs) and pathology (e.g., analyzing biopsy samples).



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Accuracy and Consistency

•**Consistency**: AI systems can provide consistent results without fatigue or bias that might affect human decision-making. They are able to analyze vast amounts of data quickly, leading to potentially quicker diagnoses.

•**Extensive Data Analysis**: AI can analyze large datasets from electronic health records (EHRs), genomic data, and clinical studies. This ability can help identify patterns and correlations in diseases that might not be apparent to human doctors.

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Limitations of AI

•**Understanding Context**: AI lacks the nuanced understanding of human emotions, patient history, and social determinants of health that an experienced physician can assess. Thus, it may struggle with complex cases involving psychological or social factors.

•**Data Quality**: AI performance heavily depends on the quality and diversity of the data it is trained on. Biases in training data can lead to incorrect or unequal diagnoses in different populations.

•**Real-world Application**: While AI can demonstrate high accuracy in controlled environments or datasets, real-world application may expose limitations due to variable patient presentations and unexpected factors.

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What are AI Hallucinations?

AI hallucinations refer to a phenomenon where artificial intelligence models, particularly those based on deep learning, generate outputs that are not grounded in reality or are factually incorrect.

•**Misleading Outputs**: Hallucinations occur when an AI produces outputs (text, images, etc.) that are plausible-sounding but incorrect or nonsensical. For instance, a language model might confidently assert a false fact or fabricate details about a subject.

Common in Generative Models

•**Language Models**: In natural language processing, models may invent facts, create fictitious citations, or misinterpret questions, leading to responses that lack verifiable truth.

•**Image Generators**: AI image generation models can create images that depict unrealistic scenarios or objects that do not exist, often blending features in ways that make them look surreal or unrecognizable.

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Role of Human Physicians

Clinical Judgment: Physicians apply not only medical knowledge but also clinical experience, intuition, and ethics in their decision-making.

Patient Interaction: The doctor-patient relationship, which includes empathy, communication, and shared decision-making, is crucial in healthcare and cannot be replicated by AI. Ambiguous situations or when making treatment decisions.

Integration of Knowledge: Physicians can integrate AI insights with their clinical judgement, making decisions that consider all facets of a patient's health and circumstances.

Complementary Approach

Augmented Intelligence: The most promising approach currently is using AI to augment physicians' capabilities rather than replace them. AI can serve as a decision-support tool, providing second opinions and aiding in diagnostic processes, which can enhance the overall efficiency and effectiveness of healthcare delivery.

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Conclusion

AI technologies are making significant strides in health diagnostics and can match or exceed the diagnostic capabilities of human physicians in specific tasks. However, human physicians bring irreplaceable qualities that ensure holistic patient care, making an integrated approach the most effective path forward.

Continuous improvements in AI, along with ethical considerations and robust training data, will shape the future of healthcare diagnostics.

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How can I use AI to improve my care?

Some AI systems are very good at finding information in large data sets and returning answers that are relevant to a specific patient. Some examples include:

- **When a procedure was performed**
- **When did conditions present themselves**
- **What medications are patients currently taking**
- **What treatment plans were prescribed**
- **What are the lab results**
- **What the complex medical terminology means**

The most important thing to remember in advocating for your own care is to arm yourself with information!

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Some popular AI powered healthcare tools:

MyFitnessPal	Health Tracker
Fitbit App	Wearable Technology
Teladoc Health	Telemedicine Platform
HealthTap	Symptom Checker
Woebot	Mental Health App
Wysa	Mental Health App
Dario Health	Diabetes Management
Ada	Symptom Checker
Buoy Health	Symptom Checker

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How can the free wisepatientAI app help?

- Connect all of your healthcare portals in one place!
- Manage your entire family's health in the app.
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- Have a patient snapshot on hand at all times
- Clinical notes and lab results, all within the palm of your hand!

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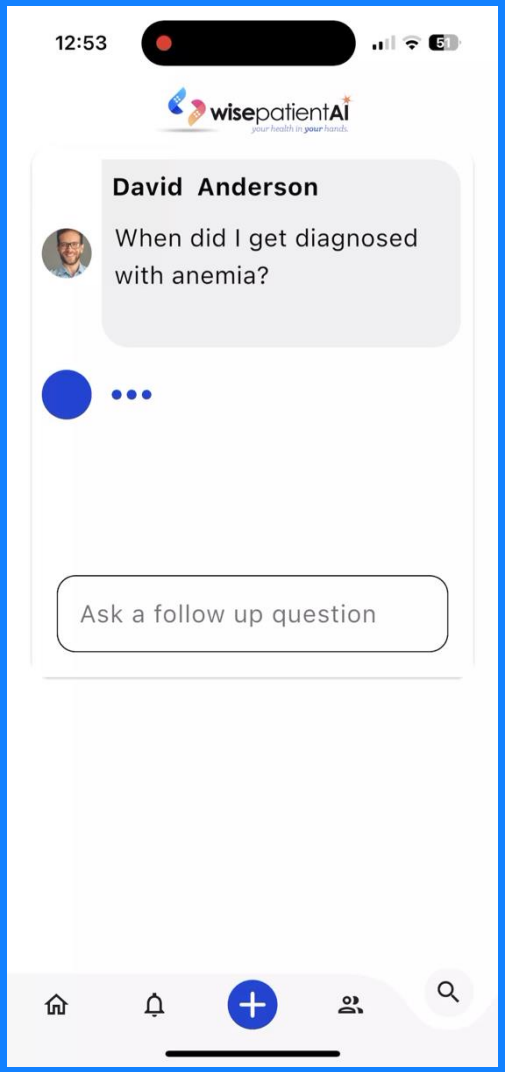
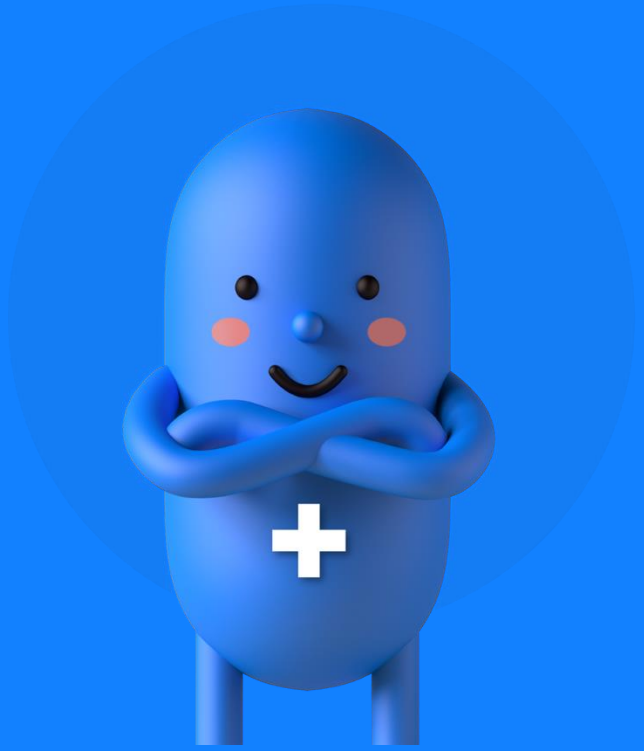
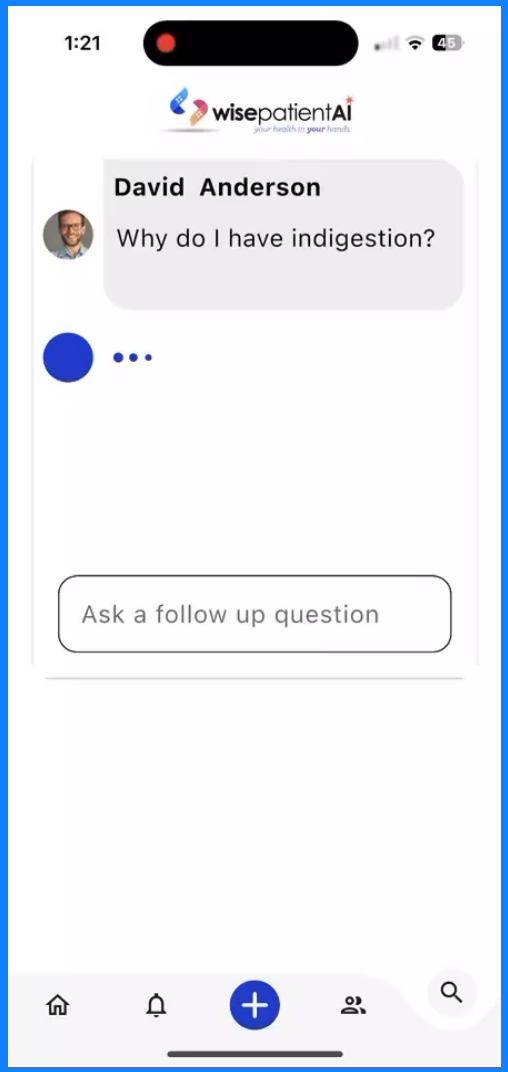
Use AI to Help Improve Your Care!







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Thank You!

David Friede
Vice President Strategy
wisepatientAI
David@wisepatientAI.com
479-715-1702